Applicant herewith directs the Examiner to make the requested Claims corrections and amendments as detailed below.

(however, as an explanation, the the more narrow air cooling ranges cited before were chosen because of representing a more energy efficient temperature spread, while the wider ranges are less efficient but reduce more emissions, as anyone versed in the art would readily understand.)

Applicant replaces Claims 63 to 84 with Claims 85 to 102, in order to relate more specifically to Classification 431 Combustion for the present Application, and thereby eliminating any possible cross-reference to Application 10/798,292, Classification 110 Furnace, or Application 10/798,294, Classification 310 Single or Dual Cycle Generator, or Application 10/780,470, Classification 60 Turbine Engine.

AMENDMENTS

Claims 63 to 84 CANCELLED

I claim:

85. (New) **A method** to improve the efficiency of all processes of combustion of fluid hydrocarbon fuels, through reducing the density of said fuels in combination with increasing the density of combustion air without effecting their specified volumes, thereby significantly changing the ratio of fuel mass versus combustion air mass, hence oxygen mass, during ignition and combustion of fluid hydrocarbon fuels such as natural gas, propane gas and the like, in all combustion mechanisms having a combustion area and at least one burner therein for converting said fuel into energy, such as heat, thrust or torque, comprising:

a) providing fluid hydrocarbon fuel as fuel for said combustion process;

b) directing said fuel through the fuel supply conduit defining a first heat exchanger assembly that extends through a first heat transfer zone related to the combustion process;

e) reducing the density of said fuel by heating the fuel as it flows through said first heat exchanger assembly to an optimal fuel operating temperature level ranging between 165 degrees Fahrenheit and the fuel's flash point or auto ignition level;

n) maintaining a constant volume of density reduced fuel supply to said combustion mechanisms for said combustion process;

o) providing combustion air to said combustion mechanisms for said combustion process;

p) directing said combustion air through an air supply conduit defining a second heat exchanger assembly that extends through a second heat transfer zone of said combustion mechanisms;

q) increasing the density of said combustion air by cooling the combustion air as it flows through said second heat exchanger assembly to an optimal air operating temperature level of between ambient and minus 50 degrees Fahrenheit;

r) maintaining a constant volume of density increased combustion air to said combustion mechanisms combustion area for said combustion process.

86. (New) A combustion method according to Claim 85, wherein the density reduction of the fuel is stabilised with an insulating or heat storage material forming part of the heat exchanger assemblies.

87. (New) A combustion method according to Claim 85, wherein at least one of said heat transfer zones is related to the exhaust gas vent area of the combustion mechanism.

88. (New) A combustion method according to Claim 85, wherein at least one of said heat transfer zones is related to the combustion area of the combustion mechanism.

89. (New) A combustion method according to Claim 85, wherein said heat transfer zones are operated from a source other than the combustion or exhaust gas vent area of the combustion mechanism.

90. (New) A combustion method according to Claim 85, wherein said preselected optimal fuel operating temperature range is within the preselected general fuel operating temperature range from 165 degrees to 900 degrees Fahrenheit.

91. (New) A combustion method according to Claim 85, wherein the combustion mechanism converts the oxidation mixture of fuel and air into high temperature, high velocity combustion products to operate a related fluid heat transfer system.

92. (New) A combustion method according to Claim 85, wherein at least one of the two heat exchanger assemblies is operational.

93. (New) A combustion method according to Claim 85, wherein the fluid hydrocarbon fuel includes a coal dust suspended in gas, air or liquid, forming a fluid coal dust slurry.

94. (New) A combustion method according to Claim 85, wherein the fluid hydrocarbon fuel is a liquid fuel.

95. (New) **A device** consisting of a combination of components for operating the combustion method of reducing fuel density together with increasing combustion air density, without effecting the specified fuel or air volumes, thereby significantly changing the ratio of fuel mass versus combustion air mass, hence oxygen mass, such as to improve the combustion efficiency during the process of ignition and combustion of fluid hydrocarbon fuels such as natural gas, propane gas and the like, in mechanisms having a combustion area and at least one burner therein for converting said fuel into energy, such as heat, thrust or torque, comprising:

a) a fuel supply conduit defining a first heat exchanger assembly located in a heating zone related to the combustion area of the mechanism, providing the means for the process of maintaining a constant supply of fluid hydrocarbon fuel to the combustion area of said combustion mechanism at a preselected optimal operating temperature level ranging between 165 degrees Fahrenheit and the fuel's flash point or auto ignition level;

b) a combustion air supply conduit defining a second heat exchanger assembly located in a cooling zone related to the combustion mechanism, providing the means for the process of maintaining a constant volume of combustion air to the combustion area of said mechanism at a preselected optimal operating temperature level ranging between plus ambient and minus 50 degrees Fahrenheit.

96. (New) A device according to Claim 95, wherein at least one heat transfer zone is related to the exhaust gas vent area of the combustion mechanism.

97. (New) A device according to Claim 95, wherein at least one heat transfer zone is related to the combustion area of the combustion mechanism.

98. (New). A device according to Claim 95, wherein the heat transfer zones are related to an operating source other than the combustion or exhaust gas vent area of the combustion mechanism.

99. (New) A device according to Claim 85, wherein a preselected volume of combustion air is routed through a contained duct system which provides temperature control and the means for density increase of said combustion air volume by cooling the air to a preselected temperature range below ambient prior to combustion.

100. (New) A device according to Claim 85, which provides the means for the combustion mechanism to convert an oxidation mixture of fuel and air into high temperature, high velocity combustion products for the purpose of operating a related fluid heat transfer system.

101. (New) A device according to Claim 85, wherein the fluid hydrocarbon fuel is a fuel other than natural gas or propane gas.

102. (New) A device according to Claim 85, wherein at least one of the two heat exchanger assemblies is operational.

103. (New) A device according to Claim 85, wherein the fluid hydrocarbon fuel is a coal dust suspended in a liquid, in gas or air.